

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	65465	(encode or encoded or encoding or code or coded or coding or encrypt or encrypted or encrypting or encryption or cryptology or cryptographic or cryptographically) near5 (recipient or address or destination or addressee)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:52
2	BRS	L2	3586	1 near5 (mail or box or package or envelope or letter or mailpiece or parcel or shipment or item)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:52
3	BRS	L3	2201	1 near5 (ocr or barcode or bar or ((machine or mechanical or mechanically) near2 (read or reading or readable or scan or scanner or scanned or scanning or scanable or optical or read or reading or acquire or acquired or acquiring or acquirable)))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:52
4	BRS	L4	26494	(return or returned or spoil or spoiled or ruin or undeliver or undelivered or undeliverable) near5 (mail or box or package or envelope or letter or mailpiece or parcel or shipment or item)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:53
5	BRS	L5	128315	(scan or scanner or scanned or scanning or optical or read or reading or acquire or acquired or acquiring) near5 (recipient or address or destination or addressee)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:53
6	BRS	L6	9903	(4 or 5) near5 (clean or cleaned or cleaning or correct or corrected or correcting or correction or update or updated or updating or modify or modified or modifying or modification or alter or altered or altering or alteration or change or changed or changing)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:54

	Type	L #	Hits	Search Text	DBs	Time Stamp
7	BRS	L7	98	4 near5 5	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:54
8	BRS	L8	9	2 and 3 and 6 and 7 <i>Scanned Ti, Ab, Kwic all</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:55
9	BRS	L9	740	2 and 3	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:55
10	BRS	L10	47	9 and 6	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:55
11	BRS	L11	43	9 and 7	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:55
12	BRS	L12	81	10 or 11 <i>Scanned Ti, Ab, Kwic all</i>	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB; USOCR	2004/01/07 16:56

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	US 6292709 B1	20010918	Uhl, Berthold et al.	700/226	209/584; 209/900; 209/937	20
2	US 5925864 A	19990720	Sansone, Ronald P. et al.	235/375	209/584; 209/900; 235/385; 235/436; 235/454; 902/2; 902/4	18

L8 results

	Document ID	Issue Date	Inventor	Current OR	Current XRef	Pages
1	JP 07171505 A	19950711	NISHIZONO, MAKOTO et al.			10
2	US 6549892 B1	20030415	Sansone, Ronald P.	705/401		16
3	US 6292709 B1	20010918	Uhl, Berthold et al.	700/226	209/584; 209/900; 209/937	20
4	US 5925864 A	19990720	Sansone, Ronald P. et al.	235/375	209/584; 209/900; 235/385; 235/436; 235/454; 902/2; 902/4	18
5	US 5770841 A	19980623	Moed, Michael C. et al.	235/375	235/454	14

L12 results

13/9/4 (Item 4 from file: 15)

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Signed, Sealed, Delivered

Evans-Correia, Kate

Purchasing v105 n8 PP: 98-99 Nov 24, 1988

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LANGUAGE: English

LENGTH: 2 Pages

ABSTRACT: The US Postal Service (USPS) is promoting the use of bar codes on envelopes to improve the efficiency of mail sorting. Mail imprinted with a bar code to indicate zip code plus 4 additional digits saves several steps and can be sorted automatically. When the USPS can save a step in sorting mail, the customer is eligible for an additional discount. To keep pace with mail volume, growth, and rising costs, the USPS eventually would like to replace existing operations with bar code sorting. Three methods of imprinting bar codes on **mail** are: 1. preprinting on **return** envelopes, 2. using an **optical** character reader to **read** the **address**, search its memory, and print the bar code on the envelope or label, and 3. printing the bar code at the time the bill is prepared. While current limitations of the bar code system prevent it from reading the code wherever it may appear on the envelope, technicians are working to solve this problem.

PAT-NO: JP407171505A
DOCUMENT-IDENTIFIER: JP 07171505 A
TITLE: MAIL ADDRESS CODE READER
PUBN-DATE: July 11, 1995
INVENTOR-INFORMATION:
NAME
NISHIZONO, MAKOTO
OI, KATSUNORI
NAKAMURA, YOSHIKATSU
INT-CL (IPC): B07C003/18

ABSTRACT:

PURPOSE: To easily deliver mail by simply and accurately reading the corrected address code of mail in a mail address code reader reading the address of mail using OCR(optical character recognition device) and applying an address code to the mail to classify the mail.

CONSTITUTION: A mail address code reader has address recognition devices 14, 15 optically reading the address entered in mail and an address code printer 16 classifying the confirmed address to apply the address code concerned and converting the address code to a machine code to print the mail with machine code. When an address is corrected, address code printers 28, 29 printing the machine code corresponding to the corrected address on a region separate from the machine code of mail are used and an address code reader 24 recognizing the corrected address code as a regular address code at the time of reading is installed.

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Brief Summary Text - BSTX (11): An advantage of this invention is that each mail recipient will have a unique code that will always relate the recipients name and any address change with the unique code. Thus, the number of address change errors will be reduced and a larger percentage of mail will be delivered to the correct address.

Drawing Description Text - DRTX (4): FIG. 3A is a drawing of a mail piece having a unique code in the address field;

Drawing Description Text - DRTX (5): FIG. 3B is a drawing of a mail piece having a unique code in the address field which the post has indicated the delivery address of the moved recipient;

Drawing Description Text - DRTX (6): FIG. 4 is a drawing showing how one may change the address to which their mail having a unique code will be delivered;

Drawing Description Text - DRTX (9): FIG. 7 is a drawing of a flow chart showing a request by a mail recipient requesting a routing change for their unique code;

Detailed Description Text - DETX (4): Mail that has been scanned by bar code sorter 12 and mail that has been scanned by sorters 13 and 14 will be checked by unique code data center 75, if scanners 12, 13 or 14 detect a unique code in the recipient address field of the mail, i.e., 1020 49 337 491XJDX092299 or scan a unique code in the bar code affixed to the mail by the mailer. Unique code data center 75 contains a name/address relational data base 68 (FIG. 4). Data base 68 will use the unique code number to determine the actual destination that the recipient wants the mail delivered to. The foregoing may be accomplished by looking up the unique code in data base 68 and determining the address that the owner of the unique code is currently having their mail delivered. Data base 68 supplies information to sorters 12, 13 and 14 and re-coder 18 via computer 54 so that sorters 12, 13 and 14 and re-coder 18 will place a bar code on the mail that indicates the zip code that the owner of the unique code is currently having their mail delivered. Sorters 12, 13 and 14 and re-coder 18 will also print the street, city and state that the owner of the unique code is currently having their mail delivered in human readable form.

Detailed Description Text - DETX (5): FIG. 2 is a drawing showing how this invention may be used by the post in the processing of collection mail 21. Approximately 40 percent of the mail currently received by the United States Postal Service is collection mail. Collection mail is metered, stamped or business reply permit mail that is placed in mail boxes or delivered to the United States Postal Service unsorted. Collection mail is sent to advanced facer canceller 22. Facer canceller 22 first faces the mail. Then facer canceller 22 electronically identifies and separates prebarcoded mail, handwritten addresses and machine-imprinted address pieces for faster processing through automation. Mail that canceller 22 determines is optical character readable is sent to multi-line optical character reader/code printer 23. Reader 23 reads the entire address on the mail, sprays a bar code on the mail, and then sorts the mail. Mail that is able to be scanned and sorted by reader 23 is sent to bar code sorter/code printer 24. Mail that the mailer has prebarcoded and contains a facing identification mark is sent to bar code sorter/code printer 24.

Detailed Description Text - DETX (9): Mail that has been read by reader 23 and mail that has been coded by system 32 or by re-coder 33 will be checked in unique code data center 75, if a unique code 40 appears in the recipient address field of the mail or in the bar code affixed to the mail, i.e., 1020 49 337 491XJDX092299 or scan a unique code in the bar code affixed to the mail by the mailer. Unique code data center 75 contains a unique code name/address relational data base 68 (FIG. 4). Data base 68 will use the unique code number to determine the actual destination that the recipient wants the mail delivered to. The foregoing may be accomplished by looking up the unique code in data base 68 and determining the address that the owner of the unique code 40 is currently having their mail delivered. Data base 68 supplies information to reader 23, sorters 24, 25, 26 and 28 and re-coder 33 so that sorters 23, 25, 26 and 28 and re-coder 33 will place a bar code on the mail that indicates the zip code that the owner of the unique code is currently having their mail delivered. Sorters 24, 25, 26 and 28 and re-coder 33 will also print the street, city and state that the owner of the unique code currently wants their mail delivered in human readable form.

Detailed Description Text - DETX (10): FIG. 3A is a drawing of a mail piece having a unique code 40 as part of its address. Unique code 40 may be printed in alphanumeric characters, or as a one or two dimensional bar code, etc. Unique code 40 may be an encrypted version of recipients social security number or tax identification number, etc. The encryption may be based upon any recognized code such as the Data Encryption Standard (DES) or the Rivest, Shamir and Adleman Cipher (RSA). Upon the appropriate information being supplied to an encryptor (not shown) from computer 54 (FIG. 4) would generate an encrypted code from its inputs and send the code back to computer 54. The appropriate information may include recipients social security number or tax identification number, the date, time of the day the encryption was made to nanoseconds, the current address of the recipient, the number of unique codes requested in the last thirty minutes, etc.

Detailed Description Text - DETX (11): Mail piece 36 has a sender address field 37 and material 38 that indicates the payment of the postage for mail piece 36. Material 38 may be a postal indicia, postal permit or one or more stamps. The recipient address field 39 will only have to include the unique code 40, i.e., 1020 49 337 491XJDX092299 and the name of the person or entity 41 to whom mail piece 36 is sent. The street address 46 and the city, state and zip code 45 may also be included on mail piece 36.

Detailed Description Text - DETX (12): FIG. 3B is a drawing of a mail piece having a unique code in the address field which the post has indicated the delivery address of the moved recipient. Mail piece 36 has a sender address field 37 and material 38 that indicates the payment of the postage for mail piece 36. Material 38 may be a postal indicia, postal permit or one or more stamps. The recipient address field 39 will include the unique code 40, i.e., 1020 49 337 491XJDX092299 and the name of the person or entity 41 to whom mail piece 36 is sent. The street address 46 and the city, state and zip code 45 may also be included on mail piece 36. The post will print the delivery address 42 that the owner of the unique code currently wants mail piece 36 delivery to. The post will also print a postnet bar code 43 on the face of mail piece 36. Bar code 43 represents the delivery address 42 in a coded form.

Detailed Description Text - DETX (13): FIG. 4 is a drawing showing how a mailer may obtain a recipient's unique code and how a recipient may change the address to which their mail is currently being delivered. Mailers 50 may communicate their intentions regarding the determination of a unique code for particular parties or entities via a personal computer.

Detailed Description Text - DETX (17): Computer 54 will obtain mail forwarding information for mail piece 36 by receiving the information from data base 68 when a proper mailer request is received from mailer user request process 62 and process 69 metered the above request. Data base 68 will indicate the current listed address for each name and unique code. Computer 54 will transmit the current address that the recipient has for their unique code in data base 68 to modem 56. The current address will be sent in the form of a postnet bar code as well as in human readable text. Modem 56 will transmit the address to sorters 12, 13 and 14 and re-coder 18 (FIG. 1) and sorters 24, 25, 26 and 28 and re-coder 33 (FIG. 2).

Detailed Description Text - DETX (19): FIG. 5 is a change of address registration card 200. Card 200 may be used for registering a unique code or for changing the delivery address for the unique code. Card 200 indicates: the primary residence 201 of the person or entity who is registering for a unique code in space 202; their street delivery address in space 203; their delivery city in space 204; their delivery state in space 205; and their delivery zip code in space 206. The assigned unique code 40 is shown in space 212. Unique code 40 may be printed in alphanumeric characters, or as a one or two dimensional bar code, etc. Unique code 40 may be an encrypted version of recipients social security number or tax identification number, etc. The date in which the recipient having the unique code wants mail to be delivered their new delivery address or new residence 211 is shown in space 208. The signature of the person who is obtaining a unique code or changing their delivery address will be placed in space 213. The date the signature was signed in space 213 is indicated in space 214. A biometrics 215 of the person whose signature appears in space 213 may also be placed on card 200. Biometrics 215 may be: a picture of the person signing in space 213; the person's fingerprint; etc.

Detailed Description Text - DETX (21): FIG. 6 is a drawing of a flow chart showing a request by the post for the current postal delivery address for a name and a unique code. The program begins in block 100 where a postal scanner (FIG. 1, FIG. 2) captures the name 41, unique code 40, and delivery address from a mail piece 36 (FIG. 3A, FIG. 3B). Then the program goes to block 101 where the post requests data center 75 to lookup the current delivery address for the name and unique code number scanned. Now the program goes to block 102 where data center 75 receives a lookup request from the post. Next in block 103 data center 75 captures the identity of the post office that scanned the mail piece.

Detailed Description Text - DETX (22): In block 104 the process searches the unique codes in data base 68 to find the current postal delivery address for the name and unique code captured. In block 105 the process determines whether or not the delivery address matches the name and unique code. Then the program goes to block 106 where access metering and billing process 69 meters the above transaction so that the post or mailer may be charged for the services provided. At this point in block 107 the process appends a new delivery address that matches the name and unique code

captured, if the delivery address differs from the delivery address captured. The new delivery address is supplied in a postnet bar code format as well as in human readable text. Next in block 108 the post extracts the looked up address. Then in block 109 the post's scanners (FIG. 1 and FIG. 2) prints the looked up address on a mail piece in a postnet bar code format as well as in human readable text. At this point the program goes to block 110 where the post deletes the temporary file. Then the program goes back to the input of block 100.

Detailed Description Text - DETX (23): FIG. 7 is a drawing of a flow chart showing a request by a mail recipient requesting a routing change for their unique code. The program begins in block 120 where a mail recipient enters a request to have the delivery address for their unique code number changed to a different delivery address. Then the program goes to block 121 where the recipient enters their unique code. Now the program goes to block 122 where data center computer 54 validates the recipient by determining whether or not the recipient has the correct name and unique code. Next in block 123 computer 54 accepts the request from the recipient. In block 124 computer 54 makes the address change requested by the recipient. The requested changes are stored in data bases 67 and 68. In block 125 access metering and billing process 69 meters the above transaction so that the post, mailer, or recipient may be charged for the services provided. Then the program goes to block 126, where process 69 indicates the process was completed. Now the program goes to block 127 where the mailer receives a message that the requested address change has been completed. At this point the program goes back to the input of block 120.

Detailed Description Text - DETX (29): The above specification describes a new and improved system and method for enabling the post to deliver mail addressed to a name and a recipient unique code to be delivered directly to the recipient. It is realized that the above description may indicate to those skilled in the art additional ways in which the principles of this invention may be used without departing from the spirit. It is, therefore, intended that this invention be limited only by the scope of the appended claims.

Claims Text - CLTX (1): 1. A method for delivering mail that is addressed to a named recipient, said method comprises the steps of: receiving recipient's name and recipient's current delivery address; assigning a unique code for individual recipients; relating in a database recipient's unique code with recipient's name and current delivery address; delivering information to recipient's that represents their assigned unique codes; placing by the sender of mail information that represents recipient's name and unique code on mail; reading information on mail to capture recipients name and unique code, when present; changing recipient's current delivery address in the data base in accordance with recipient's instructions; determining recipient's current delivery address from recipients name and unique code; printing by a mail carrier on mail recipient's current delivery address if the current delivery address on the mail differs from the recipient's delivery address currently in the data base; and delivering mail to recipient's current delivery address.

Claims Text - CLTX (10): 10. The method claimed in claim 1, wherein recipient's current delivery address is placed on mail in coded form.

Claims Text - CLTX (12): 12. The method claimed in claim 10, wherein recipient's desired delivery address is placed on mail in coded form and human-readable form.

DIALOG 06 APRIL 2003

File 2:INSPEC 1969-2003/Mar W5 (c) 2003 Institution of Electrical Engineers
File 9:Business & Industry(R) Jul/1994-2003/Apr 04 (c) 2003 Resp. DB Svcs.
File 15:ABI/Inform(R) 1971-2003/Apr 05 (c) 2003 ProQuest Info&Learning
File 16:Gale Group PROMT(R) 1990-2003/Apr 04 (c) 2003 The Gale Group
File 20:Dialog Global Reporter 1997-2003/Apr 05 (c) 2003 The Dialog Corp.
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File 65:Inside Conferences 1993-2003/Mar W5 (c) 2003 BLDSC all rts. reserv.
File 99:Wilson Appl. Sci & Tech Abs 1983-2003/Feb (c) 2003 The HW Wilson Co.
File 148:Gale Group Trade & Industry DB 1976-2003/Apr 04 (c)2003 The Gale Group
File 160:Gale Group PROMT(R) 1972-1989 (c) 1999 The Gale Group
File 233:Internet & Personal Comp. Abs. 1981-2003/Feb (c) 2003 Info. Today Inc.
File 256:SoftBase:Reviews,Companies&Prods. 82-2003/Feb (c)2003 Info.Sources Inc
File 275:Gale Group Computer DB(TM) 1983-2003/Apr 04 (c) 2003 The Gale Group
File 347:JAPIO Oct 1976-2002/Dec(Updated 030402) (c) 2003 JPO & JAPIO
File 348:EUROPEAN PATENTS 1978-2003/Mar W05 (c) 2003 European Patent Office
File 349:PCT FULLTEXT 1979-2002/UB=20030403,UT=20030327 (c) 2003
WIPO/Univentio
File 474:New York Times Abs 1969-2003/Apr 05 (c) 2003 The New York Times
File 475:Wall Street Journal Abs 1973-2003/Apr 04 (c) 2003 The New York Times
File 476:Financial Times Fulltext 1982-2003/Apr 05 (c) 2003 Financial Times Ltd
File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13 (c) 2002 The Gale Group
File 610:Business Wire 1999-2003/Apr 06 (c) 2003 Business Wire.
File 613:PR Newswire 1999-2003/Apr 06 (c) 2003 PR Newswire Association Inc
File 621:Gale Group New Prod. Annou.(R) 1985-2003/Apr 04 (c) 2003 The Gale Group
File 624:McGraw-Hill Publications 1985-2003/Apr 05 (c) 2003 McGraw-Hill Co. Inc
File 634:San Jose Mercury Jun 1985-2003/Apr 05 (c) 2003 San Jose Mercury News
File 636:Gale Group Newsletter DB(TM) 1987-2003/Apr 04 (c) 2003 The Gale Group
File 810:Business Wire 1986-1999/Feb 28 (c) 1999 Business Wire
File 813:PR Newswire 1987-1999/Apr 30 (c) 1999 PR Newswire Association Inc

Set	Items	Description
S1	42650	(ENCOD??? OR COD??? OR ENCRYPT???? OR CRYPTOLOGY OR CRYPTOGRAPHIC OR CRYPTOGRAPHICALLY) (5N) (RECIPIENT OR ADDRESS OR DESTINATION OR ADDRESSEE)
S2	2839	S1 (5N) (MAIL OR BOX OR PACKAGE OR ENVELOPE OR LETTER OR MAILPIECE OR PARCEL OR SHIPMENT OR ITEM)
S3	1705	S1 (5N) (OCR OR BARCODE OR BAR OR ((MACHINE OR MECHANICAL OR MECHANICALLY) (2N) (READ??? OR READABLE OR SCAN???? OR SCANABLE OR OPTICAL OR READ??? OR ACQUIR????)))
S4	41745	(RETURN OR RETURNED OR SPOIL OR SPOILED OR RUIN OR UNDELIVER OR UNDELIVERED OR UNDELIVERABLE) (5N) (MAIL OR BOX OR PACKAGE OR ENVELOPE OR LETTER OR MAILPIECE OR PARCEL OR SHIPMENT OR ITEM)
S5	54751	(SCAN OR SCANNER OR SCANNED OR SCANNING OR OPTICAL OR READ OR READING OR ACQUIRE OR ACQUIRED OR ACQUIRING) (5N) (RECIPIENT OR ADDRESS OR DESTINATION OR ADDRESSEE)
S6	26	S4(5N) S5
S7	3656	(S4 OR S5) (5N) (CLEAN???? OR CORRECT???? OR UPDAT??? OR MODIF???? OR MODIFICATION OR ALTER???? OR ALTERATION OR CHANG????)
S8	0	S2 AND S3 AND S6 AND S7
S9	424	S2 AND S3
S10	3	S9 AND S6
S11	20	S9 AND S7
S12	46	S6 OR S10 OR S11
S13	43	RD S12 (unique items) [Scanned ti,kwic all]

US-PAT-NO: 6292709

DOCUMENT-IDENTIFIER: US 6292709 B1

TITLE: Method and device for online processing of forwarding mail

DATE-ISSUED: September 18, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Uhl; Berthold	Bermatingen	N/A	N/A	DE
Irion; Astrid	Constance	N/A	N/A	DE
Rosenbaum; Walter	Paris	N/A	N/A	FR

US-CL-CURRENT: 700/226, 209/584 , 209/900 , 209/937

ABSTRACT: The invention relates to a method and a device for the online processing of mail items to be forwarded. In the process, an image of the mail item is taken and the mail item is stored in an intermediate storage area. Following digitizing, the areas with interesting information are determined and forwarding instructions, names and addresses of recipients and, in the case of a return notation by a delivery person, the sender address are read automatically. The results are checked against a name address data bank and, if they do not coincide, are checked against a forwarding directory. Items that are not read clearly automatically, but for which at least one forwarding instruction exists for possible delivery locations, are evaluated with priority in a multistage video coding process by taking into account the printed-on instructions for forwarding and return. In that case, if the first video coding is incomplete, the items are again read automatically by taking into account the coding results and, if necessary, an additional video coding. The items leaving the intermediate storage area are then imprinted with forwarding instructions and distributed correspondingly.

9 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

----- KWIC -----

Brief Summary Text - BSTX (2): The invention relates to an online processing of mail to be forwarded and methods for improving the optical code recognition of postal addresses through use of video encoding techniques.

Brief Summary Text - BSTX (3): The automatic reading of mailing addresses with the aid of optical code recognition (OCR) is a technology representing a fixture in everyday postal life. Processing rates of up to 10 items per second (36,000 items per hour) are possible with modem address readers. The reliability of the recognition depends to a large degree on the character design and the quality of the print. If the recognition is successful, a machine-readable barcode is printed on. This barcode permits the step-by-step mechanical separation of the items until the desired sorting has been achieved. The bar coding technology in particular has made possible the step-by-step sorting (multi-pass) of the items until they are sorted in the delivery sequence of the delivery person.

Detailed Description Text - DETX (13): Other signals are also transmitted to the address change system: A delivery instruction 218 detection system detects the imprints of the return stamps, used by the delivery persons and transmits a signal 311 if such a stamp is recognized. A device for detecting advance instructions detects such advance instructions as "please return to sender if recipient has moved," and sends a signal 310 to the address change system 214 if an advance instruction is detected. For a return of the mail, it is also necessary to read the sender address. This task is taken over by the optical code recognition and the video coding system.

Detailed Description Text - DETX (26): If no advance instruction was detected, the mail is forwarded. For this, the barcode of the new recipient address is printed on as target code 150 and an instruction to forward the mail 151, as well as the new address 152, are printed on as clear text. The mail is then sorted in step 153 according to the new address.

Detailed Description Text - DETX (65): FIG. 13 illustrates the machine configuration for the online system for the automatic processing of items to be forwarded or returned. A mail item 400 is fed into an integrated address reading and video coding system, here referred to as "presorting." In this machine, it is scanned with a highly developed scanner 402 after it has passed by the pre-barcode detector 401. The scanned pixel image is sent to the recognition system 404, for which the task and function were described in detail in the preceding explanations. The recognition system is supported by a video coding system where video-coding personnel at video coding stations 409 either input the address information or make selections from lists with alternatives. A video control computer 418 controls the transmission of images from the recognition system to the video coding system, as well as the return transmission of the coded results to the machine control 410, to permit the imprinting of the items with the target barcode 403, as well as the sorting into the correct rough sorting compartment 407.

Detailed Description Text - DETX (67): The rough sorting compartments 407 contain items with correct addresses as well as items that must be forwarded or returned, for which the addresses could be corrected with the online system for the automatic processing of items to be forwarded and returned. This flow of letters moves directly into the next processing stage, which is generally the final sorting stage.

Claims Text - CLTX (6): e. automatically reading in of instructions for returning or forwarding of mail items and reading of recipient name and address by means of an OCR reader, including automatically checking of results in a name address data bank and, in case they do not coincide, in another data bank where forwarding requests relative to delivery points are stored, wherein only the sender address is read in case of determination of a return notation made by a delivery person on the mail item;

Claims Text - CLTX (8): g. printing, legibly and encoded, a new recipient address, and forwarding instructions on the mail items leaving the intermediate storage; and

Claims Text - CLTX (13): 5. The method according to claim 1, including supplying a sender address to the video coding if it cannot be read automatically and with certainty by means of an

OCR reader.

Claims Text - CLTX (32): automatically reading in of instructions for returning or forwarding of mail items and reading of recipient name and address by means of an OCR reader, including automatically checking of results in a name/address data bank and, in case they do not coincide, in another data bank where forwarding requests relative to delivery points are stored, wherein only the sender address is read in case of a determination of a return notation made by a delivery person on the mail item;

Claims Text - CLTX (37): printing, legibly and encoded, a new recipient address, and forwarding instructions on the mail items leaving the intermediate storage; and

L12 RESULTS

Brief Summary Text - BSTX (2): The invention relates to an online processing of mail to be forwarded and methods for improving the optical code recognition of postal addresses through use of video encoding techniques.

Brief Summary Text - BSTX (3): The automatic reading of mailing addresses with the aid of optical code recognition (OCR) is a technology representing a fixture in everyday postal life. Processing rates of up to 10 items per second (36,000 items per hour) are possible with modern address readers. The reliability of the recognition depends to a large degree on the character design and the quality of the print. If the recognition is successful, a machine-readable barcode is printed on. This barcode permits the step-by-step mechanical separation of the items until the desired sorting has been achieved. The bar coding technology in particular has made possible the step-by-step sorting (multi-pass) of the items until they are sorted in the delivery sequence of the delivery person.

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Detailed Description Text - DETX (26): If no advance instruction was detected, the mail is forwarded. For this, the barcode of the new recipient address is printed on as target code 150 and an instruction to forward the mail 151, as well as the new address 152, are printed on as clear text. The mail is then sorted in step 153 according to the new address.

Detailed Description Text - DETX (65): FIG. 13 illustrates the machine configuration for the online system for the automatic processing of items to be forwarded or returned. A mail item 400 is fed into an integrated address reading and video coding system, here referred to as "presorting."

In this machine, it is scanned with a highly developed scanner 402 after it has passed by the pre-barcode detector 401. The scanned pixel image is sent to the recognition system 404, for which the task and function were described in detail in the preceding explanations. The recognition system is supported by a video coding system where video-coding personnel at video coding stations 409 either input the address information or make selections from lists with alternatives. A video control computer 418 controls the transmission of images from the recognition system to the video coding system, as well as the return transmission of the coded results to the machine control 410, to permit the imprinting of the items with the target barcode 403, as well as the sorting into the correct rough sorting compartment 407.

Detailed Description Text - DETX (67): The rough sorting compartments 407 contain items with correct addresses as well as items that must be forwarded or returned, for which the addresses could be corrected with the online system for the automatic processing of items to be forwarded and returned. This flow of letters moves directly into the next processing stage, which is generally the final sorting stage.

Claims Text - CLTX (6): e. automatically reading in of instructions for returning or forwarding of mail items and reading of recipient name and address by means of an OCR reader, including automatically checking of results in a name address data bank and, in case they do not coincide, in another data bank where forwarding requests relative to delivery points are stored, wherein only the sender address is read in case of determination of a return notation made by a delivery person on the mail item;

Claims Text - CLTX (8): g. printing, legibly and encoded, a new recipient address, and forwarding instructions on the mail items leaving the intermediate storage; and

Claims Text - CLTX (13): 5. The method according to claim 1, including supplying a sender address to the video coding if it cannot be read automatically and with certainty by means of an OCR reader.

Claims Text - CLTX (32): automatically reading in of instructions for returning or forwarding of mail items and reading of recipient name and address by means of an OCR reader, including automatically checking of results in a name/address data bank and, in case they do not coincide, in another data bank where forwarding requests relative to delivery points are stored, wherein only the sender address is read in case of a determination of a return notation made by a delivery person on the mail item;

Claims Text - CLTX (37): printing, legibly and encoded, a new recipient address, and forwarding instructions on the mail items leaving the intermediate storage; and

US-PAT-NO: 5925864

DOCUMENT-IDENTIFIER: US 5925864 A

TITLE: Metering incoming deliverable mail to automatically enable address correction

DATE-ISSUED: July 20, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Sansone; Ronald P.	Weston	CT	N/A	N/A
McFiggans; Robert B.	Stamford	CT	N/A	N/A

US-CL-CURRENT: 235/375, 209/584 , 209/900 , 235/385 , 235/436 , 235/454 , 902/2 , 902/4

ABSTRACT: A system that allows a third party such as a postage meter manufacturer or PSD manufacturer to collate data, process the data and use this information to identify delayed mail pieces that may have been incorrectly addressed. The apparatus of this invention may be utilized by organizations or people who mail invoices, bills, letters, or other items. The foregoing is accomplished by connecting a scanner and control software to a digital postage meter or PSD that would read incoming digitally metered mail. Instead of printing an indicia the scanner would read the already existing indicia and other information on the mail piece and then extract the sender data fields that are contained in the indicia or on the mail piece. The extracted mail data would be periodically uploaded to a data center. The data center would compare the extracted data with mail sender data that has previously been uploaded from sending meters and processors to determine if the unexpected delivery delays and delays are caused by incorrectly addressed mail pieces so that appropriate action may be taken.

18 Claims, 10 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 10

----- KWIC -----

Detailed Description Text - DETX (2): Referring now to the drawings in detail, and more particularly to FIG. 1, the is reference character 11 represents an electronic postage meter. Postage meter 11 includes: a funds vault 12, that represents the value of the postage that may be used by meter 11; an accounting and encryption module 13, that contains information that is used to print indicia 18; a printer 14; a scanner and processor 15; a controller 16; a clock and calendar 6; a user I/O 17, and a I/O 56. Accounting and encryption module 13 obtains a security code that may be obtained from address field 9 of mail piece 10 and information contained in postage meter 11. The manner in which the aforementioned security code is obtained is disclosed in the Sansone et al U.S. Pat. No. 4,831,555 entitled "Unsecured Postage Applying System," herein incorporated by reference. User I/O 17 comprises a keyboard in which an operator may enter information into meter 11 and a display in which an operator of meter 11 may read information about meter 11. Funds vault 12, accounting and encryption module 13; indicia printer 14; scanner and processor 15; clock and calendar 6; and user I/O 17 are coupled to controller 16. Clock and calendar 6 provides an internal source of time and date for controller 16. Thus, clock and calendar 6 will supply the instant date and time that meter 11 affixed the indicia to mail piece 10. Scanner and processor 15 will store the above information in buffer 54 (described in the description of FIG.

2).

Detailed Description Text - DETX (5): Printer 14 will print postal indicia 18 on mail piece 10. Scanner and processor 15 scans address field 9 and sender return address field 8 of mail piece 10. Then scanner and processor 15 segments the information contained in fields 8 and 9 and stores the segmented information i.e., tracking code 7. Tracking code 7 may be similar to or the same as the security code determined by accounting encryption module 13. For instance, a unique tracking number may be composed by assembling a number that includes the meter number, the date of mailing of the mail piece, the time of day, the postage placed on the mail piece, the zip code of the licensee of the meter, the name, address, city, state and zip code of the sender of the mail piece and the name address, city, state and zip code of the recipient of the mail piece. It will be obvious to one skilled in the art that any combination of the aforementioned variables may be used if the meter number is included. In the United States meter manufacturer identify their meters by one or two alpha characters before the meter number. It will also be obvious to one skilled in the art that many other variables may be used to produce unique tracking numbers.

Detailed Description Text - DETX (11): FIG. 2 is a drawing of scanner and data processors 15 and 45 of FIG. 1 in greater detail. The operator of meter 41 may use I/O 47 to select the meter mode to place a postal indicia on mail piece 10 or the scan mode to read the postal indicia on mail piece 10. When the operator of meter 41 selects the scan mode, controller 46 turns control of meter 41 over to scan process controller 51. Mail piece 10 will be moved under scanner 55 and transported through meter 41 (not shown). Scanner 55 will store the image of mail piece 10 in buffer 52, convert the image by using the process mentioned in block 53 and store the processed image in processed mail data buffer 54. Then the optical character recognition process 53 will begin. Process 53 will segment the image into its various components, i.e., amount of postage, meter number, date mail piece 10 mailed, place mail piece 10 mailed, security code 89, tracking number 7, recipient address 9, and return address 8, etc. At this point, a recognition process will take the segmented components of the aforementioned image and convert them into an ASCII text field. In the identification process, it will be determined whether or not the ASCII information is in the correct format. Now the extracted information will be placed in processed mail data buffer 54. Clock and calendar 58 will be used to determine when mail piece 10 was scanned and I/O 57 will be used to convey the information stored in buffer 54 to modem 21 at predetermined times.

Detailed Description Text - DETX (13): Scanner 55 will store the image of mail piece 10 in buffer 52, while mail piece 10 is being printed by meter 11. Scanner 55 will also convert the image by using the process shown in block 53 and store the processed image in mail data buffer 54. Then the optical character recognition process 53 will begin. Process 53 will segment the image into its various components, i.e., amount of postage, meter number, date mail piece 10 mailed, place mail piece 10 mailed, security code 89, tracking number 7, recipient address 9, and return address 8 etc. At this point, the recognition process will take the segmented components of the aforementioned image and convert them into an ASCII text field. In the identification process, it will be determined whether or not the ASCII information is in the correct format. Now the extracted information will be placed in processed mail data buffer 54. Clock and calendar 6 will be used to note when an indicia was affixed to mail piece 10 and when mail piece 10 was scanned.

I/O 56 will be used to convey the information stored in buffer 54 to modem 20 at a predetermined time.

Detailed Description Text - DETX (15): FIG. 4 is a drawing of a mail piece 10 containing an indicia 37. Mail piece 10 has a recipient address field 9 and a sender address field 8. Mail piece 10 contains USPS Information--Based Indicia (IBI) 37. The United States Postal Service Engineering Center recently published a notice of proposed specification that describes an Information Based Indicia. The postal indicia 37 contains a dollar amount 93, the date 94, that the postal indicia was affixed to mail piece 10, the place 95 that mail piece 10 was mailed, the postal security device serial number 96, a FIM code 97; a 2D encrypted bar code 98; and a tracking number 7. Serial number 96 may be derived from bar code 98 or be equal to bar code 98. Bar code 98 is a unique number that is derived from address field 9 and information contained in the postal security device that affixed IBI 37. The manner in which information contained in bar code 98 is obtained is disclosed in the Sansone, et al. U.S. Pat. No. 4,831,555 entitled "UNSECURED POSTAGE APPLYING SYSTEM," herein incorporated by reference. Mail piece 10 also contains an indication 38 of the class of mail piece 10.

Detailed Description Text - DETX (17): FIG. 6 is a drawing of a flow chart of the scan/upload process for the meter and the PSD. The user selects the scan address correction process and inserts a mail piece for the meter. For the receiving PSD 342 (FIG. 8), the user selects the scan address correction process and inserts a mail piece into scanner 345. The foregoing may be done for all mail delivered to the recipient and to mail returned to the sender because it is undeliverable as addressed. Block 899 processes the mail piece and sends a start process signal to the scan controller. This process is used by meter controller 46 of FIG. 1. Then the program goes to block 901. Block 901 determines whether or not the scan mode has been selected. If the scan mode has not been selected, then the program goes back to block 901. If the scan mode has been selected, the program goes to decision block 903 and sets $N=0$. Block 902 determines whether or not the edge of mail piece 10 has been sensed. If the edge of mail piece 10 has not been sensed, then the program goes back to block 902. If the edge of mail piece 10 has been sensed, then the program goes to block 904 to set $N=N+1$, where N is a piece count of the image of a mail piece.

Detailed Description Text - DETX (33): FIG. 8 is a block diagram of a PSD based PC mailing system. Personal computer (PC) 311 includes: a PC controller 316; a user 110 317; and a PC I/O 356. PSD 312 obtains a security code that may be obtained from address field 309 of mail piece 310 and information contained in PC 311. User I/O 317 comprises a keyboard in which an operator may enter information into PC 311 and a display in which a operator of PC 311 may read information about PC 311. A clock and calendar inside PSD 312 will supply the instant date and time that printer 314 affixed the indicia to mail piece 310. Scanner and processor 315 will store the above information in PC 311.

Detailed Description Text - DETX (36): Printer 314 will print postal indicia 318 on mail piece 310. Scanner and processor 315 scans address field 309 and sender return address field 308 of mail piece 310. Then scanner and processor 315 segments the information contained in fields 308 and 309 and stores the segmented information, i.e., tracking code 307. Tracking code 307 may

be similar to or the same as the security code determined by PSD 312. It will be obvious to one skilled in the art that there are many different methods to produce unique tracking numbers.

Claims Text - CLTX (5): wherein the mail piece is returned to the recipient units because the mail piece is improperly addressed, the mail piece is read by the recipient scanner and the data center supplies the correct mail piece address.

L12 RESULTS

Detailed Description Text - DETX (2): Referring now to the drawings in detail, and more particularly to FIG. 1, the is reference character 11 represents an electronic postage meter. Postage meter 11 includes: a funds vault 12, that represents the value of the postage that may be used by meter 11; an accounting and encryption module 13, that contains information that is used to print indicia 18; a printer 14; a scanner and processor 15; a controller 16; a clock and calendar 6; a user I/O 17, and a I/O 56. Accounting and encryption module 13 obtains a security code that may be obtained from address field 9 of mail piece 10 and information contained in postage meter 11. The manner in which the aforementioned security code is obtained is disclosed in the Sansone et al U.S. Pat. No. 4,831,555 entitled "Unsecured Postage Applying System," herein incorporated by reference. User I/O 17 comprises a keyboard in which an operator may enter information into meter 11 and a display in which an operator of meter 11 may read information about meter 11. Funds vault 12, accounting and encryption module 13; indicia printer 14; scanner and processor 15; clock and calendar 6; and user I/O 17 are coupled to controller 16. Clock and calendar 6 provides an internal source of time and date for controller 16. Thus, clock and calendar 6 will supply the instant date and time that meter 11 affixed the indicia to mail piece 10. Scanner and processor 15 will store the above information in buffer 54 (described in the description of FIG. 2).

Detailed Description Text - DETX (5): Printer 14 will print postal indicia 18 on mail piece 10. Scanner and processor 15 scans address field 9 and sender return address field 8 of mail piece 10. Then scanner and processor 15 segments the information contained in fields 8 and 9 and stores the segmented information i.e., tracking code 7. Tracking code 7 may be similar to or the same as the security code determined by accounting encryption module 13. For instance, a unique tracking number may be composed by assembling a number that includes the meter number, the date of mailing of the mail piece, the time of day, the postage placed on the mail piece, the zip code of the licensee of the meter, the name, address, city, state and zip code of the sender of the mail piece and the name address, city, state and zip code of the recipient of the mail piece. It will be obvious to one skilled in the art that any combination of the aforementioned variables may be used if the meter number is included. In the United States meter manufacturer identify their meters by one or two alpha characters before the meter number. It will also be obvious to one skilled in the art that many other variables may be used to produce unique tracking numbers.

Detailed Description Text - DETX (11): FIG. 2 is a drawing of scanner and data processors 15 and 45 of FIG. 1 in greater detail. The operator of meter 41 may use I/O 47 to select the meter mode to place a postal indicia on mail piece 10 or the scan mode to read the postal indicia on mail

piece 10. When the operator of meter 41 selects the scan mode, controller 46 turns control of meter 41 over to scan process controller 51. Mail piece 10 will be moved under scanner 55 and transported through meter 41 (not shown). Scanner 55 will store the image of mail piece 10 in buffer 52, convert the image by using the process mentioned in block 53 and store the processed image in processed mail data buffer 54. Then the optical character recognition process 53 will begin. Process 53 will segment the image into its various components, i.e., amount of postage, meter number, date mail piece 10 mailed, place mail piece 10 mailed, security code 89, tracking number 7, recipient address 9, and return address 8, etc. At this point, a recognition process will take the segmented components of the aforementioned image and convert them into an ASCII text field. In the identification process, it will be determined whether or not the ASCII information is in the correct format. Now the extracted information will be placed in processed mail data buffer 54. Clock and calendar 58 will be used to determine when mail piece 10 was scanned and I/O 57 will be used to convey the information stored in buffer 54 to modem 21 at predetermined times.

Detailed Description Text - DETX (13): Scanner 55 will store the image of mail piece 10 in buffer 52, while mail piece 10 is being printed by meter 11. Scanner 55 will also convert the image by using the process shown in block 53 and store the processed image in mail data buffer 54. Then the optical character recognition process 53 will begin. Process 53 will segment the image into its various components, i.e., amount of postage, meter number, date mail piece 10 mailed, place mail piece 10 mailed, security code 89, tracking number 7, recipient address 9, and return address 8 etc. At this point, the recognition process will take the segmented components of the aforementioned image and convert them into an ASCII text field. In the identification process, it will be determined whether or not the ASCII information is in the correct format. Now the extracted information will be placed in processed mail data buffer 54. Clock and calendar 6 will be used to note when an indicia was affixed to mail piece 10 and when mail piece 10 was scanned. I/O 56 will be used to convey the information stored in buffer 54 to modem 20 at a predetermined time.

Detailed Description Text - DETX (15): FIG. 4 is a drawing of a mail piece 10 containing an indicia 37. Mail piece 10 has a recipient address field 9 and a sender address field 8. Mail piece 10 contains USPS Information--Based Indicia (IBI) 37. The United States Postal Service Engineering Center recently published a notice of proposed specification that describes an Information Based Indicia. The postal indicia 37 contains a dollar amount 93, the date 94, that the postal indicia was affixed to mail piece 10, the place 95 that mail piece 10 was mailed, the postal security device serial number 96, a FIM code 97; a 2D encrypted bar code 98; and a tracking number 7. Serial number 96 may be derived from bar code 98 or be equal to bar code 98. Bar code 98 is a unique number that is derived from address field 9 and information contained in the postal security device that affixed IBI 37. The manner in which information contained in bar code 98 is obtained is disclosed in the Sansone, et al. U.S. Pat. No. 4,831,555 entitled "UNSECURED POSTAGE APPLYING SYSTEM," herein incorporated by reference. Mail piece 10 also contains an indication 38 of the class of mail piece 10.

Detailed Description Text - DETX (17): FIG. 6 is a drawing of a flow chart of the scan/upload process for the meter and the PSD. The user selects the scan address correction process and inserts

a mail piece for the meter. For the receiving PSD 342 (FIG. 8), the user selects the scan address correction process and inserts a mail piece into scanner 345. The foregoing may be done for all mail delivered to the recipient and to mail returned to the sender because it is undeliverable as addressed. Block 899 processes the mail piece and sends a start process signal to the scan controller. This process is used by meter controller 46 of FIG. 1. Then the program goes to block 901. Block 901 determines whether or not the scan mode has been selected. If the scan mode has not been selected, then the program goes back to block 901. If the scan mode has been selected, the program goes to decision block 903 and sets $N=0$. Block 902 determines whether or not the edge of mail piece 10 has been sensed. If the edge of mail piece 10 has not been sensed, then the program goes back to block 902. If the edge of mail piece 10 has been sensed, then the program goes to block 904 to set $N=N+1$, where N is a piece count of the image of a mail piece.

Detailed Description Text - DETX (33): FIG. 8 is a block diagram of a PSD based PC mailing system. Personal computer (PC) 311 includes: a PC controller 316; a user 110 317; and a PC I/O 356. PSD 312 obtains a security code that may be obtained from address field 309 of mail piece 310 and information contained in PC 311. User I/O 317 comprises a keyboard in which an operator may enter information into PC 311 and a display in which a operator of PC 311 may read information about PC 311. A clock and calendar inside PSD 312 will supply the instant date and time that printer 314 affixed the indicia to mail piece 310. Scanner and processor 315 will store the above information in PC 311.

Detailed Description Text - DETX (36): Printer 314 will print postal indicia 318 on mail piece 310. Scanner and processor 315 scans address field 309 and sender return address field 308 of mail piece 310. Then scanner and processor 315 segments the information contained in fields 308 and 309 and stores the segmented information, i.e., tracking code 307. Tracking code 307 may be similar to or the same as the security code determined by PSD 312. It will be obvious to one skilled in the art that there are many different methods to produce unique tracking numbers.

Claims Text - CLTX (5): wherein the mail piece is returned to the recipient units because the mail piece is improperly addressed, the mail piece is read by the recipient scanner and the data center supplies the correct mail piece address.

US-PAT-NO: 5770841

DOCUMENT-IDENTIFIER: US 5770841 A

TITLE: System and method for reading package information

DATE-ISSUED: June 23, 1998

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Moed; Michael C.	Roswell	GA	N/A	N/A
Bjorner; Johannes A. S.	Woodbury	CT	N/A	N/A

US-CL-CURRENT: 235/375, 235/454

ABSTRACT: A system for reading package information includes an imaging system and a label decoding system. The imaging system captures an image of a package surface that includes a machine readable code such as a bar code and an alphanumeric destination address. The label decoding system locates and decodes the machine readable code and uses OCR techniques to read the destination address. The destination address is validated by comparing the decoded address to a database of valid addresses. If the decoded address is invalid, an image of the destination address is displayed on a workstation and an operator enters the correct address. The system forms a unified package record by combining the decoded bar code data and the correct destination address data. The unified package record is used for subsequently sorting and tracking the package and is stored in a database and applied to a label that is affixed to the package.

10 Claims, 5 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 5

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Abstract Text - ABTX (1): A system for reading package information includes an imaging system and a label decoding system. The imaging system captures an image of a package surface that includes a machine readable code such as a bar code and an alphanumeric destination address. The label decoding system locates and decodes the machine readable code and uses OCR techniques to read the destination address. The destination address is validated by comparing the decoded address to a database of valid addresses. If the decoded address is invalid, an image of the destination address is displayed on a workstation and an operator enters the correct address. The system forms a unified package record by combining the decoded bar code data and the correct destination address data. The unified package record is used for subsequently sorting and tracking the package and is stored in a database and applied to a label that is affixed to the package.

Brief Summary Text - BSTX (2): The present invention relates to package tracking systems, and more particularly relates to systems for automatically reading and decoding package information such as machine readable codes and alphanumeric destination information.

Brief Summary Text - BSTX (12): Therefore, there is a need in the art for a system that reads and decodes bar codes and text, and which verifies the accuracy of the destination address data. Furthermore, there is a need for a system that provides a method for correcting improperly

decoded destination address data, and for combining the destination address data and the decoded bar code data to form a unified package record, which may be used to track and sort the package as it moves through the package delivery system.

Brief Summary Text - BSTX (14): The present invention satisfies the above-described need by providing a system and method for reading package information. In the system of the present invention, a package bears at least one label that includes information indicia such as a destination address and a machine readable symbol (for example, a bar code or two-dimensional dense code) bearing a package identification number. As packages move along a conveyor belt, an image of each package is captured and the indicia are decoded. The decoded destination address is validated by checking a database of valid addresses. If the decoded address is invalid, an image of the address is displayed on an image display workstation, and an operator enters the correct destination address. The symbol data and destination address are combined to form a unified package record, which may be used to sort and track the package. The unified package record may be stored in a database or printed on a label and affixed to the package.

Detailed Description Text - DETX (2): The present invention provides a novel system and method for reading package information. Generally described, the system includes an imaging system that provides a digital image of a surface of a package that is moving on a conveyor belt. The image includes a bar code and destination address that are provided on the package surface. A label decoding system processes the image from the imaging system and decodes the bar code and the destination address data. The destination address data is validated by checking the address against the United States Postal Service's ZIP+4 database, which contains all of the valid addresses in the United States. If the destination address was decoded incorrectly, the portion of the image that includes the destination address is displayed on an image display workstation, along with a list of possible addresses from the database. An operator reads the destination address data from the display and manually enters it into the computer terminal or selects the correct address from a displayed list of possible addresses. After the destination address has been validated or manually entered, the bar code data and destination address data are combined to form a unified package record, which provides efficient means for automatically tracking and sorting packages. This data may be stored in a database or printed on labels and affixed to the package.

Detailed Description Text - DETX (9): FIG. 1 illustrates a system 10 for reading and decoding package information as packages travel on a conveyor belt. The system 10 includes an imaging system 12 and a label decoding system 14. Generally described, the preferred imaging system 12 is a two-camera system that includes a high resolution over-the-belt (OTB) camera 16 and a fiduciary mark detector 24, which includes the second camera. The high resolution OTB camera 16 and fiduciary mark detector 24 are mounted above a conveyor belt 18 that carries packages 20a-c in the direction of arrow 22. Together, the high resolution OTB camera 16 and fiduciary mark detector 24 ascertain the position and orientation of a fluorescent ink fiduciary mark located within a destination address block on the surface of a package, capture an image of the top surface of the package, and provide the image and the location and orientation of the fiduciary mark to the label decoding system 14. The label decoding system 14 includes general purpose and high performance computers and data storage facilities. The label decoding system 14 is connected to an image

server 29, which is connected to at least one image display workstation 30a-c, and to a label printer 32. The label decoding system 14 locates and decodes machine readable package identification data (e.g., a bar code) and destination address data contained in the image. This package identification data and destination address data are combined to form a unified package record, which may be stored in a database or printed in machine readable form on a label and affixed to the package.

Detailed Description Text - DETX (26): The label decoding system 14 is connected to a image server 29, which is connected to a network that includes a plurality of image display workstations 30a-c. If the label decoding system is unable to verify a decoded destination address by reference to the U.S. Postal Service's ZIP+4 database, the system 10 displays the destination address image on one of the image display workstations 30a-c, where it is viewed by an operator. The displayed destination address image is accompanied by the closest addresses from the database. The operator than reads the address on the display and manually enters the correct address or selects the correct address from the list of the closest addresses. Thus, the image display workstation must include a display, a processor, input means such as a keyboard, and input/output means for communication data to and from the label decoding system. The preferred image display workstations 30a-c are IBM compatible personal computers based on Intel Corporation's PENTIUM processor and running Microsoft Corporation's WINDOWS NT operating system. Those skilled in the art will appreciate that the image display workstations may include any computer imaging system or other computer image processor capable of receiving and processing pixel images and other information at high rates of speed, and that the number of such image display workstations used in a facility will depend on the volume of packages moving through the system and various other factors. Those skilled in the art will also appreciate that the image server 29 may be any computer or network server capable of being connected to the image display workstations and capable of transferring and processing pixel images at high rates of speed.

Detailed Description Text - DETX (29): The preferred method for reading package information will now be discussed in conjunction with FIGS. 3-5. As described above, the system 10 is operative for capturing an image of a package as it travels on a conveyor belt, and detecting and decoding a bar code and OCR address data that appear on the package. The OCR data is validated and, if not accurate, is displayed on a terminal where an operator can manually enter the address data. The decoded bar code data and address data are combined to form a unified package record, which is subsequently used to sort and track the package.

Detailed Description Text - DETX (32): At step 308 the label decoding system 14 processes the data from the belt encoder 44, the fiducial mark detector 24, and the high resolution camera 16. Generally described, the processing performed by the label decoding system includes locating and decoding the bar code, locating and decoding the destination address, verifying the accuracy of the destination address, and receiving a manually entered destination address if needed. The particular steps involved in processing the data are described below in conjunction with FIG. 4.

Detailed Description Text - DETX (33): At step 310 the bar code and destination address data are combined to form a unified package record, which is stored in a database or printed on a label and

affixed to the package at step 312. The data contained in the unified package record is subsequently used for sorting and tracking the package as it moves through the delivery company's system. The method 300 terminates at step 314.

Detailed Description Text - DETX (34): FIG. 4 is a flow diagram illustrating the preferred method 308 for processing image data. This method is carried out by the label decoding system 14 and forms a part of the method 300 of FIG. 3. The method 308 begins at step 400 when the label decoding system receives the data from the belt encoder 44, the fiduciary mark detector 24 and the high resolution OTB camera 16. As described above, the high resolution camera provides an image of the top of a package. The image includes a bar code 36 and a destination address 38. The fiduciary mark detector provides data indicating the location and orientation of the destination address block 40.

PAT-NO: JP407171505A
DOCUMENT-IDENTIFIER: JP 07171505 A
TITLE: MAIL ADDRESS CODE READER
PUBN-DATE: July 11, 1995
INVENTOR-INFORMATION:
NAME
NISHIZONO, MAKOTO
OI, KATSUNORI
NAKAMURA, YOSHIKATSU
INT-CL (IPC): B07C003/18

ABSTRACT:

PURPOSE: To easily deliver mail by simply and accurately reading the corrected address code of mail in a mail address code reader reading the address of mail using OCR(optical character recognition device) and applying an address code to the mail to classify the mail.

CONSTITUTION: A mail address code reader has address recognition devices 14, 15 optically reading the address entered in mail and an address code printer 16 classifying the confirmed address to apply the address code concerned and converting the address code to a machine code to print the mail with machine code. When an address is corrected, address code printers 28, 29 printing the machine code corresponding to the corrected address on a region separate from the machine code of mail are used and an address code reader 24 recognizing the corrected address code as a regular address code at the time of reading is installed.

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